Potential Impacts on Wildfire Risk

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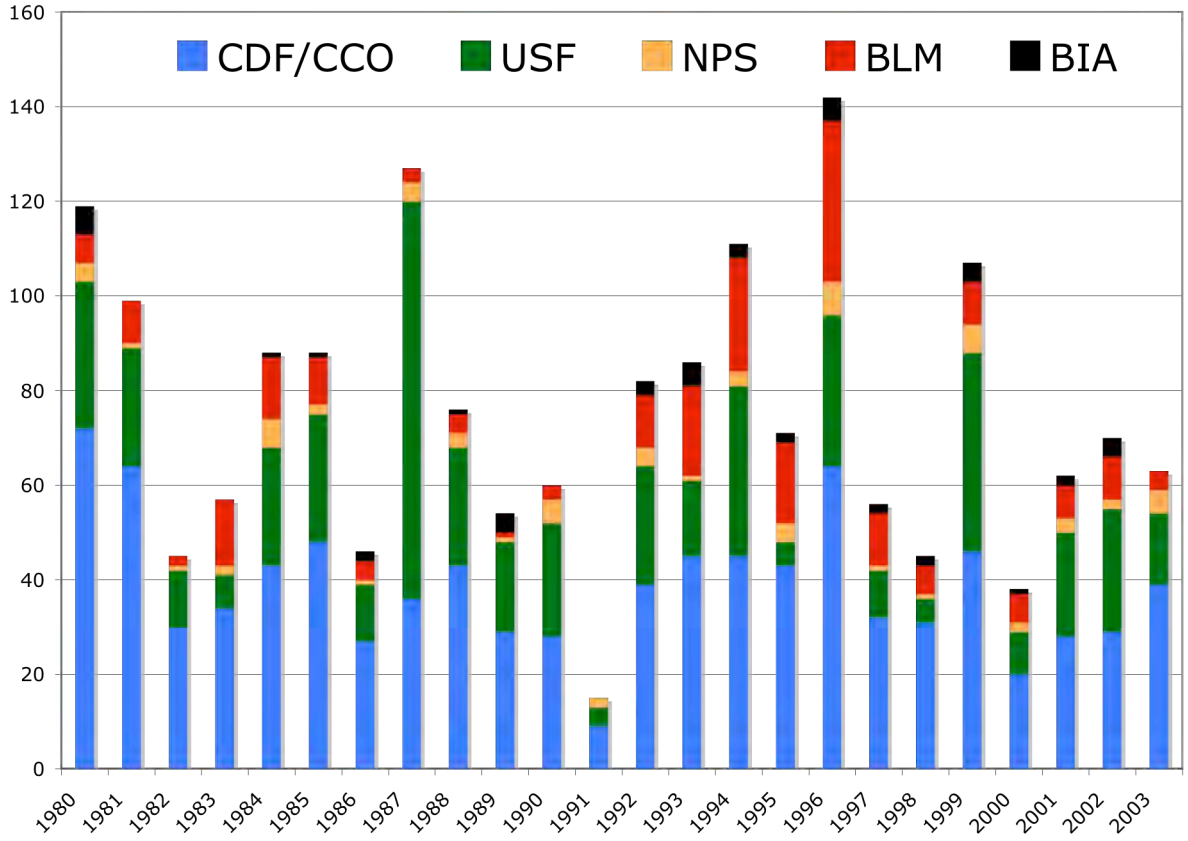
Wildfire & Vegetation Assessments

- **Fire Modeling**
  - Large Fire Risks (Westerling)
  - Severity/Escaped Fires (Fried, Gilless, Riley, Moody, Blas, Hayhoe, Moritz, Stephens, Torn)
- **Loss Modeling** (Westerling & Bryant)
- **Vegetation Modeling** (Lenihan, Drapek, Neilson, Bachelet)
- **Fire Weather** (Miller & Schlegel)
- **Fire Management Policy** (Moritz & Stephens)

Wildfire in California

Annual Large Wildfires in California by Agency: 1980 - 2003



Average Annual Area Burned in Large Fires:
~ **400,000 Acres**

Percent Large Fire Area Burned in CDF/CCO:
~ **40%**

CDF Average Annual Damages 1999-2003:
> **$300 Million** (2005 $)

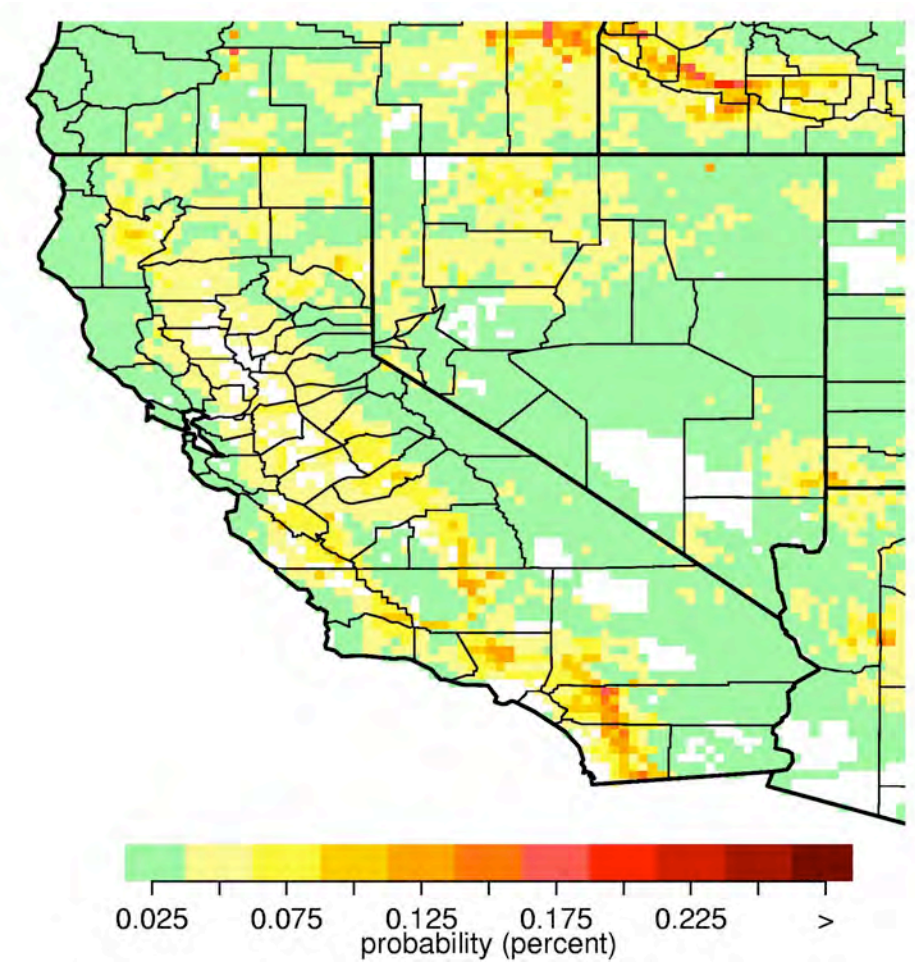
Average Annual Cost of Fire Suppression 1999-03:
> **$480 Million*** (2005 $)

* *(CDF + BLM + USFS)*

Wildfire in California

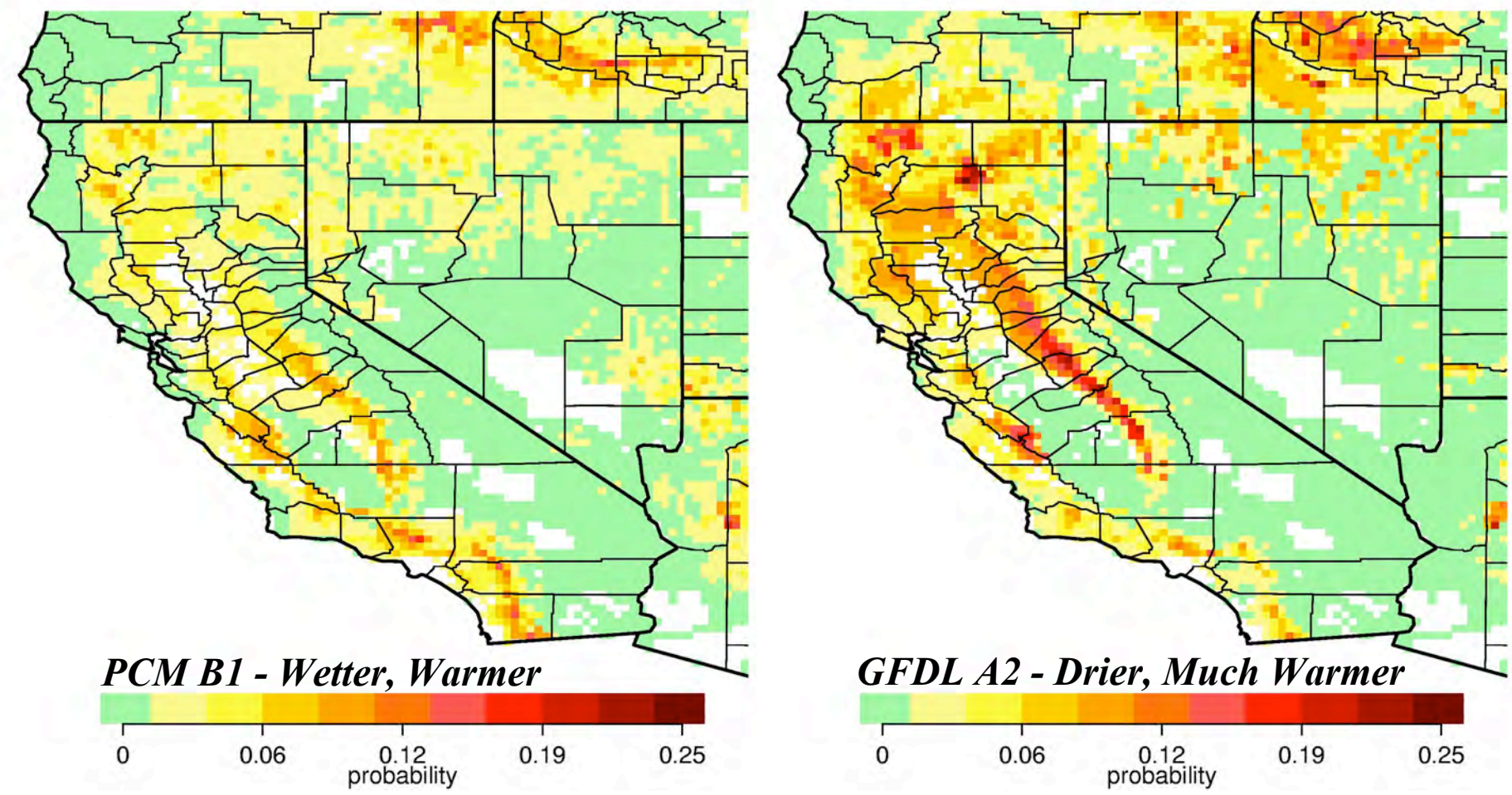
Currently, Highest California Wildfire Risks Are Mostly Concentrated in:

- **Coastal Southern California**
- **Sierra Nevada Foothills & Mountains** (< 7000 Ft Elevation)



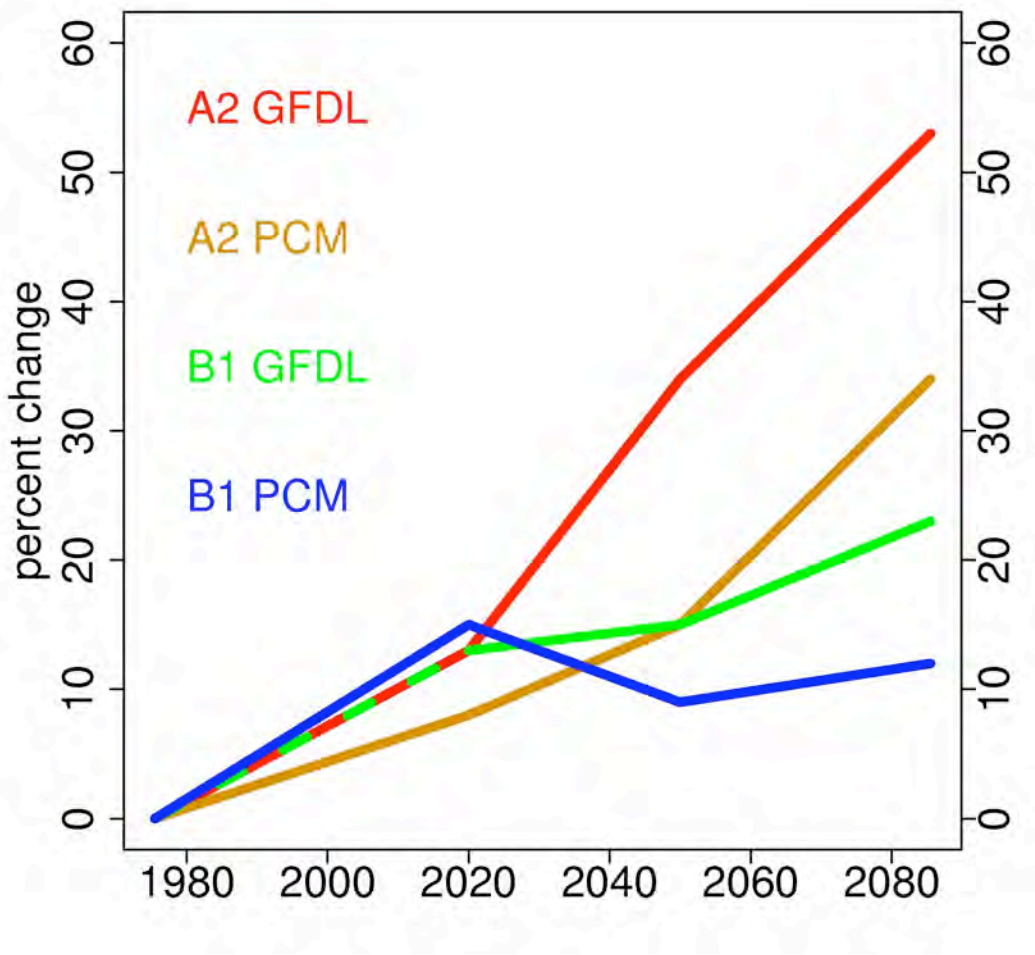
Wildfire Scenarios

Our Scenarios Envision a Wide Range of Possible Futures…

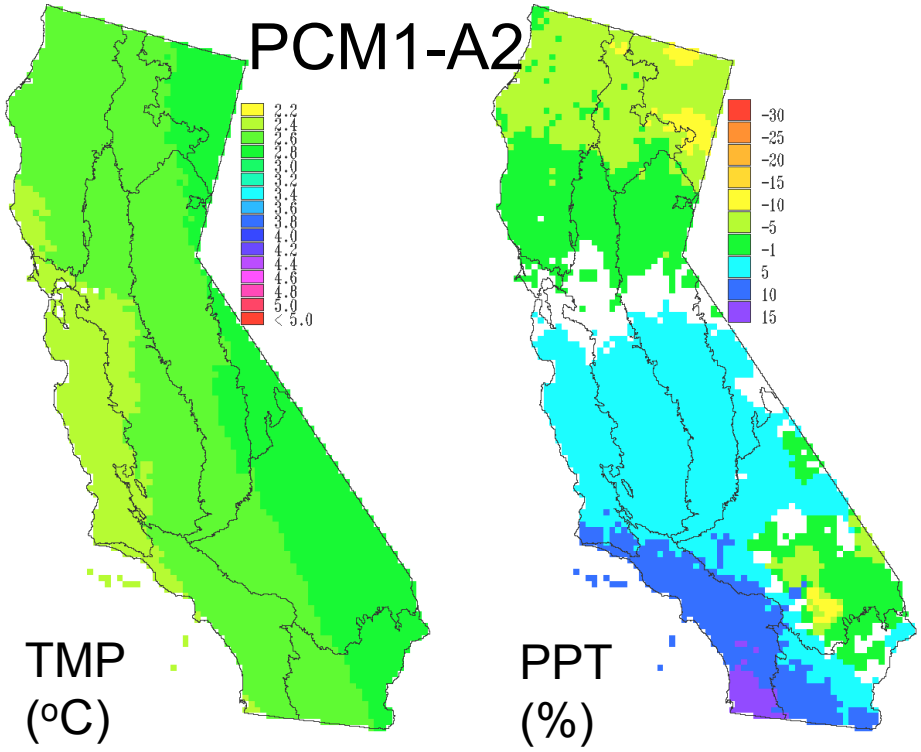


Increased Wildfire Risks

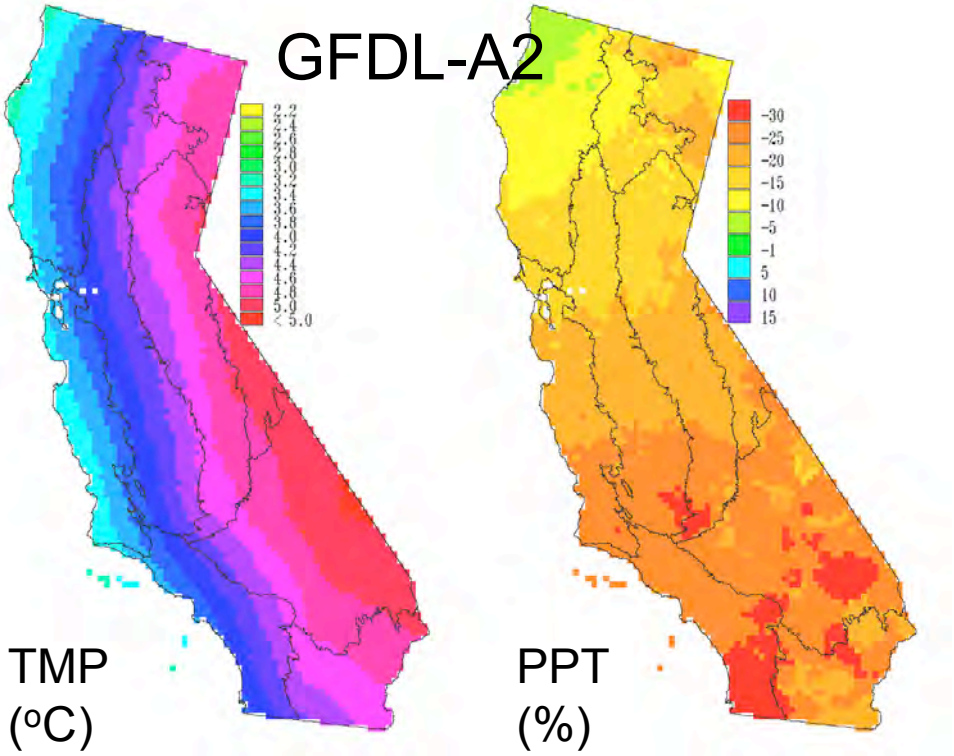
… But all of our Scenarios Result in Increased Fire Risks For California.



Precipitation vs. Temperature

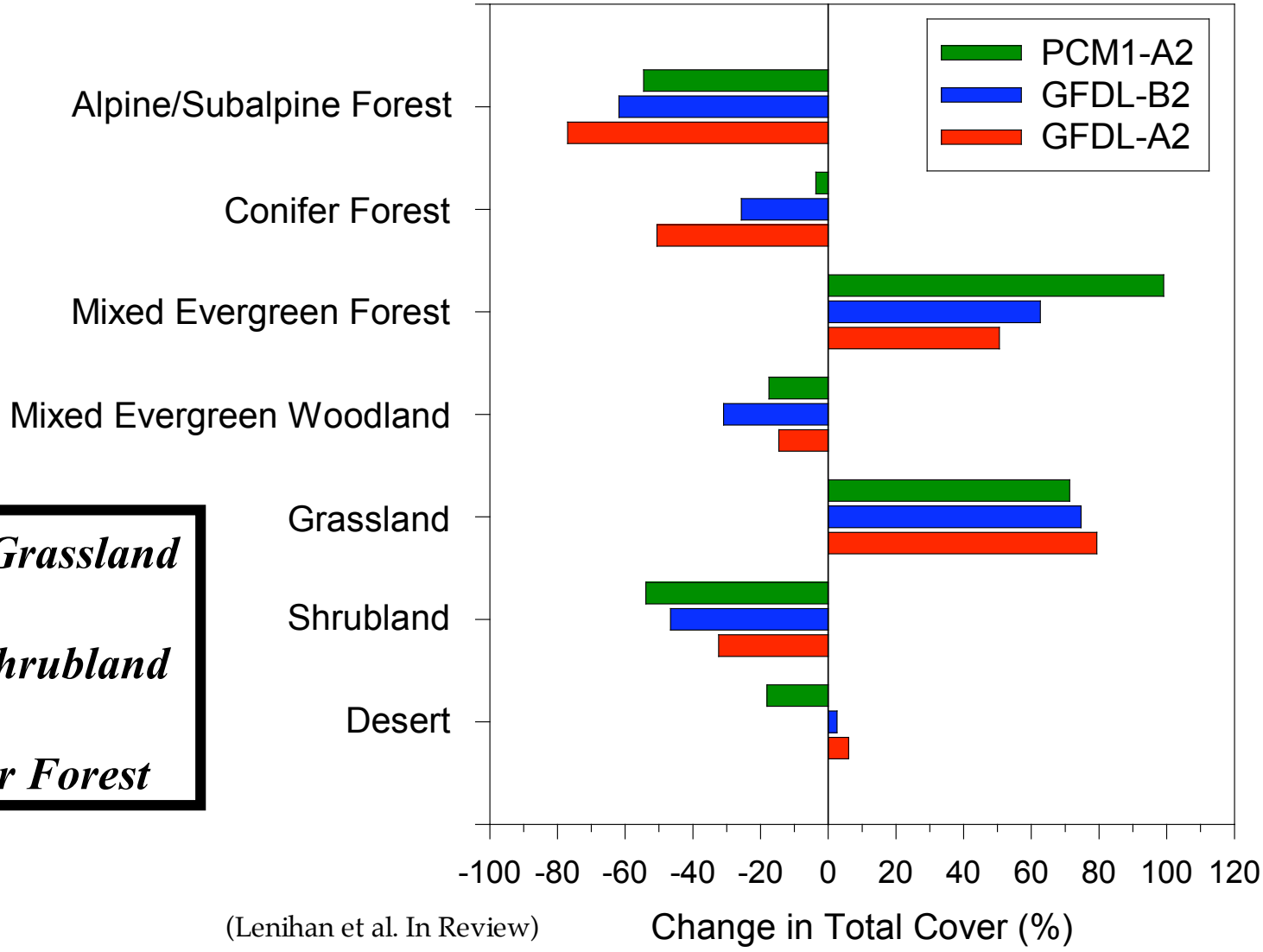


Energy - Limited
Versus
Fuel - Limited
Fire Regimes



(Lenihan et al. In Review)

Vegetation Changes



More Grassland

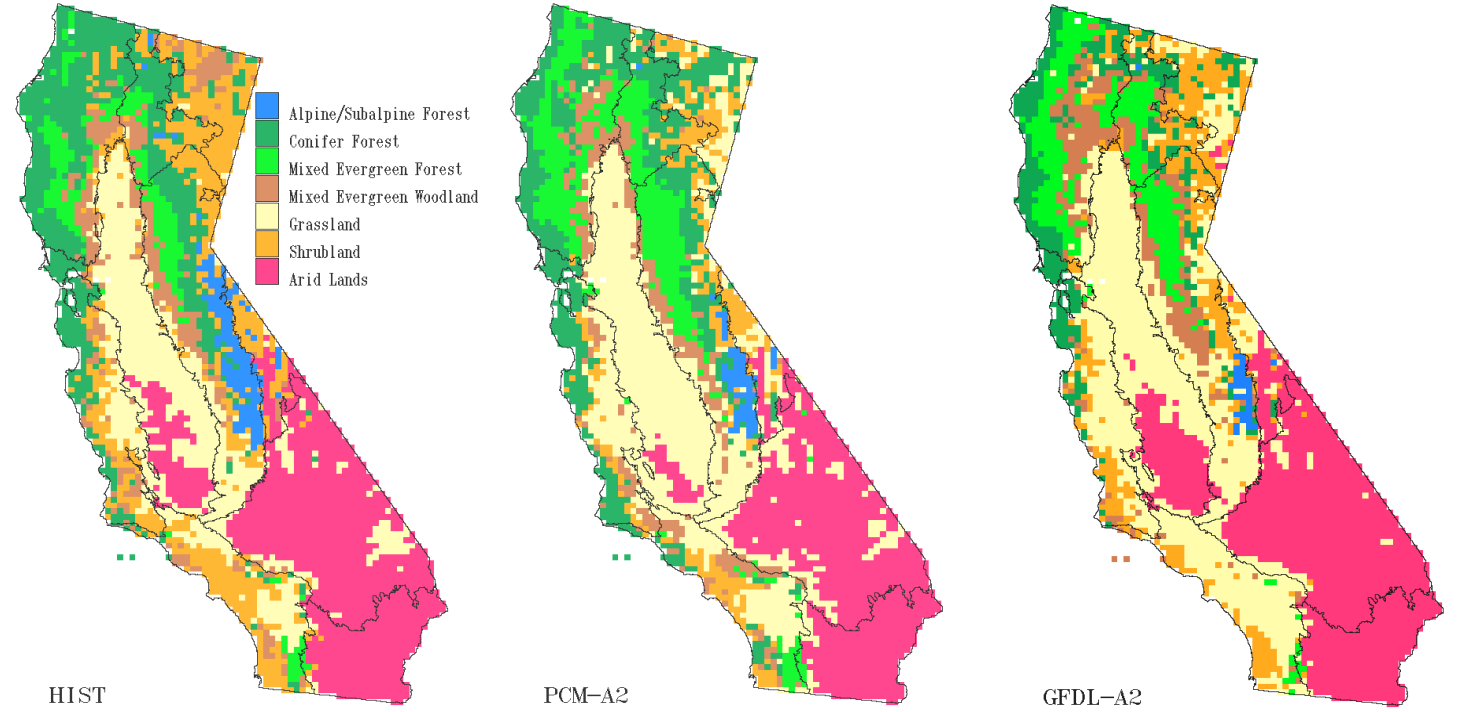
Less Shrubland

A Drier Forest

(Lenihan et al. In Review)

Vegetation Changes

End of Century Vegetation Distributions vs Historical Distribution



Historical

Medium Temperature, Wet Scenario

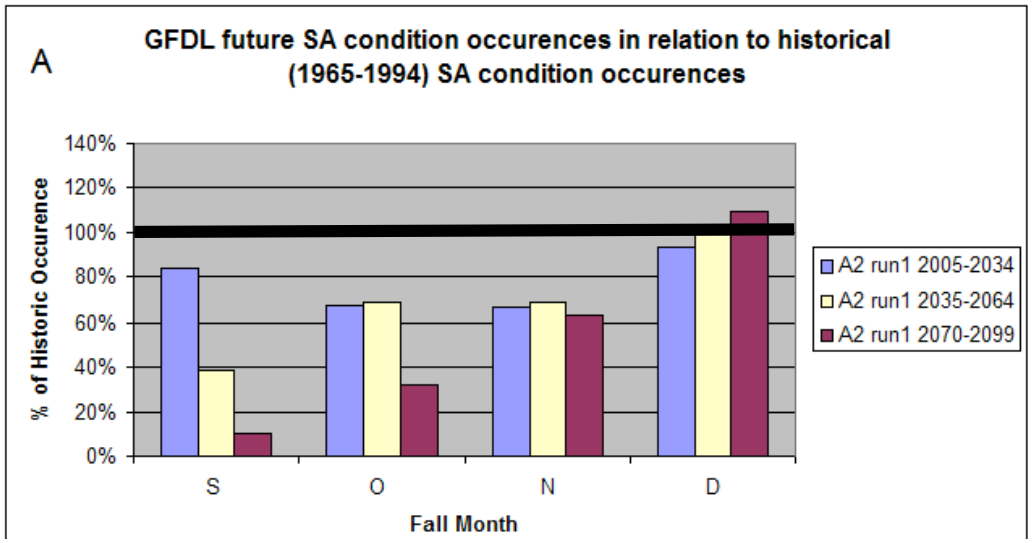
Medium-High Temperature, Dry Scenario

(Lenihan et al. In Review)

Fire Weather: Santa Ana Winds

Decrease in Frequency of September Santa Ana Wind Events

Number of Historical Santa Ana Events in September is Small



Potentially Important for Southern California Fire Risks

- Warmest Temperatures
- Dry Vegetation - Little Chance of Significant Rain
- High Fire Danger

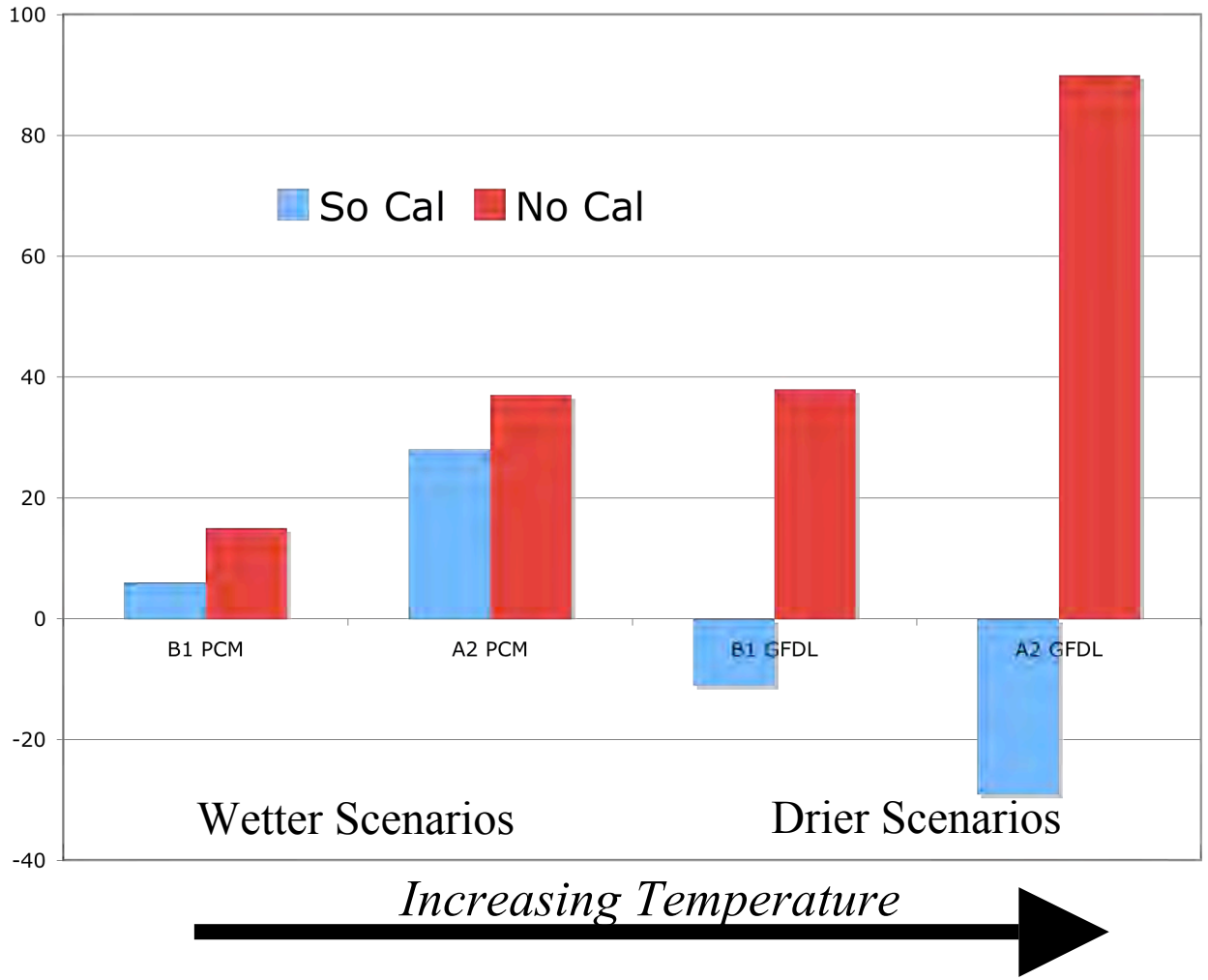
May Accentuate Divergence Between Southern/Northern California

(Miller & Schlegel, in Review)

Different Impacts Within CA

The Greatest **Increased** CA Wildfire **Risks** are Concentrated **in** **North**ern California

Greater Uncertainty for Wildfire Risks **in** **South**ern California



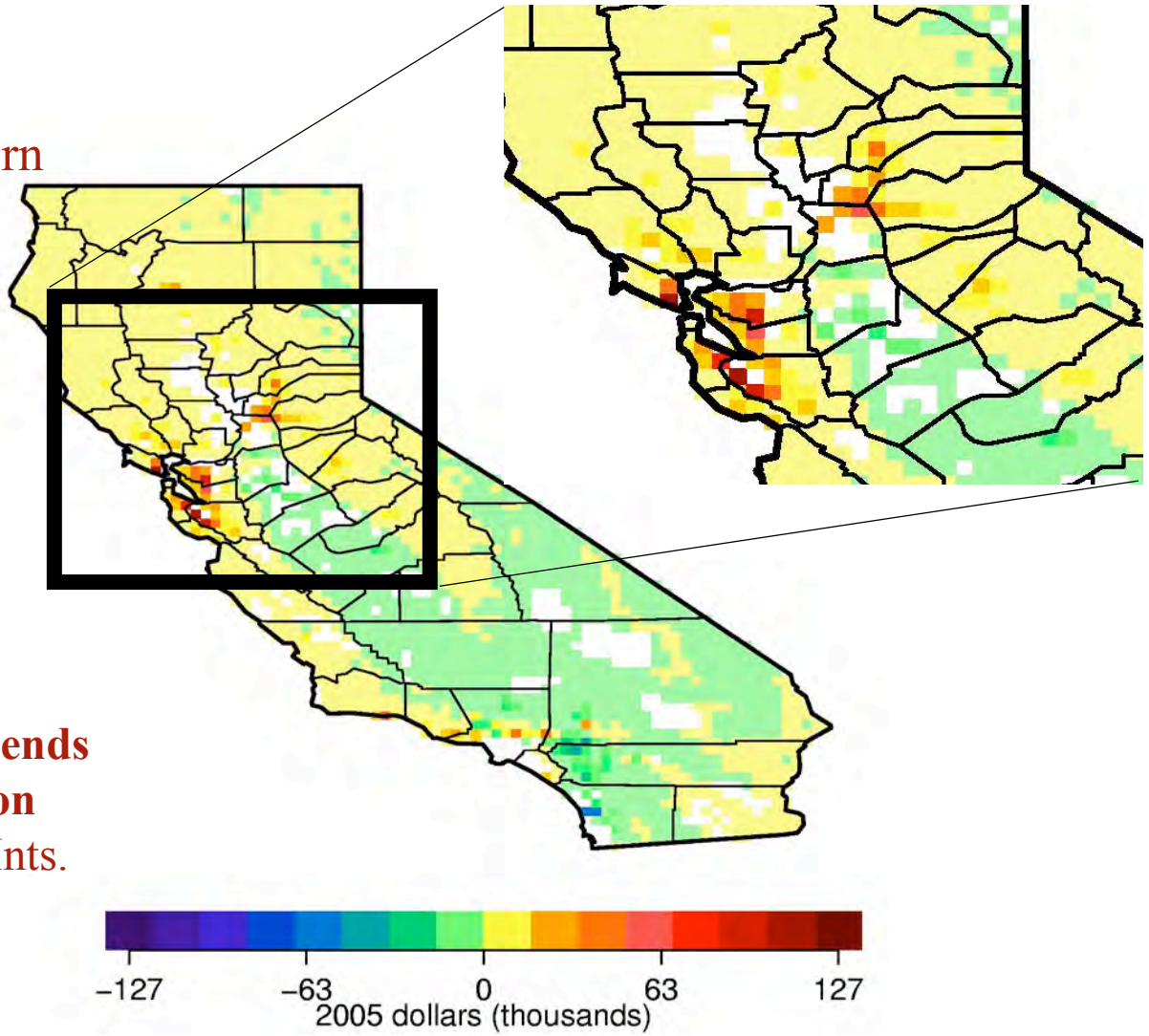
Property Losses:Warning Signs

For the GFDL A2 Scenario (Warm & Dry), **Increased Property Losses in Northern** California.

Losses **Increase Northeast of Sacramento** into the Sierra Foothills.

Structures & Property Values Based on 2000 Census.

Full extent of **future risks depends On Development & Population Growth** in the Foothills and Mnts. Of the Sierra Nevada



Possible Adaptation Strategies

Enhanced Fire & Fuels Management

Fire Prevention Education

Property Loss Risk Reduction:

materials, building codes, clearances around structures, landscaping

Limit the Growth of the Wildland/Urban Interface:

zoning and development policy that concentrates growth in population centers